Stressful life events and adolescent well-being: The role of parent and peer relationships

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Abstract

It is well established that stressful life events (e.g., family bereavements or moving to a new country) are damaging to psychological health and well-being. Indeed, social relationships are often noted as an important factor that can influence well-being and buffer the negative effects of stress. However, the *quality* and *source* of these relationships, particularly for adolescents, are often overlooked. Using the Growing Up in Ireland Survey, a population-based study of 13-year-old Irish adolescents (N = 7525; 51.1% female), the current study examines the quality of both parent and peer relationships as potential mechanisms explaining the association between stressful life events and psychological well-being indices in adolescents. As expected, results showed that stressful life events negatively impacted the psychological well-being of adolescents. Parallel mediation analyses indicated that both parent and peer relationship quality mediated this association. Further exploratory analyses found that for girls, greater numbers of stressful life events were associated with poorer quality relationships with both their parents *and* peers, and in turn, these were linked to lower levels of psychological well-being. For boys, this effect was only evident for parental relationship quality, but not peers. The implication of these findings for adolescent's psychological well-being, particularly for girls, are discussed.

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Keywords: Adolescence; Growing Up in Ireland, relationship quality; psychological well-being; stressful life events

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Introduction

Stress and well-being

The damaging effect of stressful life events on psychological well-being is well-established (DeLongis, Folkman, & Lazarus, 1988; Lazarus, 1995; Thoits, 2010); with stressful events such as bullying, grieving the loss of a loved one, or serious illness, for example, linked to an increased risk of self-harm, depression, psychotic symptoms, and overall poorer mental health (e.g., Arseneault Bowes, & Shakoor, 2010; McMahon, Reulbach, Corcoran, Keeley, Perry, & Arensman, 2010; Pitman, Osborn, King, & Erlangsen, 2014). Although all age groups are sensitive to stressful events, adolescents however, are particularly vulnerable (Park, 2004). Indeed, during this critical, transitional period from childhood and adulthood (Crone & Dahl, 2012), many physical, social and emotional changes that can impact their psychological well-being occur, such as puberty, the transition to post-primary education, and changes in social networks (Cook, Heinze, Miller, & Zimmerman, 2016; Sampasa-Kanyinga & Lewis, 2015; Simmons, 2017; Strong, Tsai, Lin, & Cheng, 2016). At the same time, it has also been identified as an important period during which young people are engaged in the development of self-concept (Sebastian, Burnett, & Blakemore, 2008); how they think about, evaluate or perceive themselves in the search for their identity (Erikson, 1950, 1968). For adolescents, self-concept is central to positive psychological outcomes (Mann, Hosman, Schaalma, & de Vries, 2004), but can also be influenced by social factors (Nezlek & Plesko, 2001) or stressful events (Turner, Finkelhor, & Ormrod, 2010). Indeed, Richie and colleagues (2011) have highlighted the importance of self-concept as a mechanism by which stress influences psychological well-being; as such,

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self-concept is a key indicator of psychological well-being. Therefore, experiencing major life stressors during this stage of development can be particularly difficult, and can result in a heightened vulnerability to life stressors for adolescents (Andersen & Teicher, 2008).

With such research demonstrating that exposure to stressors can lead to negative health outcomes (e.g., Compas, 1987; DeLongis, Folkman, & Lazarus, 1988; Thapar, Collishaw, Pine, & Thapar, 2012; Thoits, 2010), and given the significant role that self-concept plays in overall psychological well-being, it is important to understand the mechanisms by which this occurs. Often, one potential pathway used to explain this association is social relationships (House, Landis, & Umberson, 1988; Cohen, 2004; Goh & Wilkinson, 2017), however, the quality of these relationships are often overlooked as an important factor, particularly among adolescents. In fact, despite adolescents increased vulnerability to stressful events, the psychological and social pathways behind this association, are not yet entirely understood (Low et al., 2012). Therefore, the present study aimed to address these gaps in literature to examine the role of relationship *quality* as a potential mechanism explaining the stress – well-being association among adolescents.

Social Relationships

The importance of social relationships for health (e.g., Greenman, Tassé, & Tulloch, 2015; Holt-Lunstad, Smith, & Layton, 2010) is often examined in terms of the number of social relationships we have, i.e. social network size (Chan & Lee, 2006; Zhu, Woo, Porter, & Brzezinski, 2013), and the functional social support (emotional and tangible acts of support) we receive from them (Bokhorst, Sumter, & Westenberg, 2010; Chu, Saucier, &

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Hafner, 2010). Research shows that both social network size (Kim & Lee, 2011) and social support (Cohen & Syme, 1985; Thoits, 2011) are beneficial for our psychological well-being (Holt-Lundstad, Smith, & Layton, 2010). However, other research has suggested that the effectiveness of social support is contingent on the *quality* of the recipient-provider relationship (Seeman, 1996; Uno, Uchino, & Smith, 2002), where relationship quality is defined as an individual's evaluation of the positive (e.g., trust, communication) and negative (e.g., conflict) aspects of a relationship (Umberson & Montez, 2010). In fact, Teo and colleagues (2012) conducted a longitudinal study which shows that relationship quality was more beneficial for improved psychological well-being than social support, at a 10-year follow-up. Similarly, in terms of the size of our social network, research has shown that the quality of social relationships is more influential on psychological well-being than the quantity of social contacts (Pinquart & Sörenson, 2000). In other words, the benefits of social relationships for well-being may also be due the *quality* of the relationships we maintain rather than the number of friends we have, or from the support we receive. In fact, research by Chao et al. (2018) demonstrated that psychological integration, a concept related to relationship quality, mediated the relationship between childhood adversity and several problematic behaviors in early adulthood. Moreover, previous literature has demonstrated that high-quality relationships can improve psychological well-being (Bot, Engels, Knibbe, & Meeus, 2005; Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Wilkinson & Kraljevic, 2004). On the contrary however, poor quality relationships can be seen as harmful to our health, often resulting in lower levels of psychological well-being (Dush & Amato, 2005) and increases in depressive symptoms (Alloy, Abramson, Smith, Gibb, & Neeren, 2006).

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Although this literature highlights the importance of social relationships for health, it is also important however, to understand the impact of stress on our social relationships.

One theoretical framework incorporating the impact of stress on social relationships, and identifying a potential pathway through which life stress impacts well-being among adolescents is Hammen and Rudolphs (1996) interpersonal theory of psychopathology. Specifically, this theory suggests that stressors have a negative impact on adolescent psychological health through the disruption of social relationships. Consistent with this theory, evidence shows that stressors have a damaging effect on our social relationships (Lambert, Engh, Hasbun, & Holzer, 2012; Umberson et al., 2005), and the quality of these relationships (see Randall & Bodenmann, 2008 for review), particularly during adolescence (Flynn, Cicchetti, & Rogosch, 2014). This negative effect of stress on relationships can occur in a number of ways. For example, a person's lack of empathy during a stressful event, their inability to provide assistance in solving the problem (Karney & Bradbury, 1995), or even the increased possibility that challenging personality traits will become visible during stressful situations (Bodenmann, 1995). Indeed, a review conducted by Grant and colleagues (2006) reported that family-based variables such as parental relationships mediate the association between these stressors and psychological health in children and adolescents. As such, it is important to recognise social relationships as a potential mediating pathway that can help us understand the impact of stressful events on psychological well-being.

Parent and Peer Relationships

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A large body of research within the developmental literature has demonstrated that the quality of parent-adolescent relationships is an important factor influencing psychological well-being (Paulsen & Berg, 2016; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004). Specifically, research has demonstrated that high-quality parent-adolescent relationships are associated with better psychological health (Sheeber, Hops, Alpert, Davis, & Andrews, 1997), and conversely, poor-quality relationships linked to poorer psychological health, such as an increased risk of depression (Alloy, Abramson, Smith, Gibb, & Neeren, 2006). Thus, the importance of parental relationships, and the quality of these relationships in particular, for the psychological well-being of adolescents, is evident.

Throughout adolescence, however, changes in relationship networks occur, with peer relationships becoming increasingly important (Hazan & Zeifman, 1994). Indeed, some evidence for gender differences has been observed. For example, Ma and Huebner (2008) note that parental relationships were stronger predictors of life satisfaction that peer relationships, with girls reporting higher levels of attachment to peers, than boys. Overall, the quality of these peer relationships is particularly beneficial for psychological well-being (e.g., Tomé, de Matos, Camacho, Simoes & Diniz, 2014), and for improving health (McShall & Johnson, 2015). In fact, some research has suggested that for adolescents (Helsen, Vollebergh, & Meeus, 2000), peer relationship quality becomes more important than parental relationships (Furman & Buhrmester, 1992), with the benefits of peer relationships outweighing the effects of parental relationships (Hazan & Shaver, 1994) for health. In contrast, research has also demonstrated that parental attachment is a more important predictor than peer attachment for psychological health (Raja, McGee, & Stanton, 1992).

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Therefore, given such contradictory findings, it is important to consider both relationship figures as important factors for adolescent psychological well-being. Although recent research has begun to examine the effect of stressors on the quality of adolescents' relationships with *both* their parents and peers, and the effect this in turn has on psychological well-being (Aliri et al., 2019), a lack of research in this area, particularly among adolescents, has been acknowledged (Aliri et al., 2019; Dinizulu et al., 2014)

Current Study

Thus, based on the above evidence, and using the interpersonal theory of psychopathology (Hammen & Rudolph, 1996) as a framework, we hypothesise that stress will negatively predict the psychological well-being of young adolescents, and the quality of their relationships with their parents and peers will mediate the effects of this association. Specifically, we anticipate that stress will negatively be associated with the quality of adolescent's parent and peer relationships, which in turn will be associated with poorer psychological well-being. We will also explore variations across gender.

Method

Design, Sample and Procedure

This study is a secondary analysis of the Wave 2 (13-year-old) cohort of the Growing Up in Ireland (GUI) survey. The GUI survey is a government-funded study carried out jointly by Trinity College Dublin and the ESRI, which examines the development of Irish children within their social, economic, and cultural environment. Further information on the Growing Up in Ireland study can be found at https://www.growingup.ie/.

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A total of 8,568 children completed the initial assessment at age 9 (Wave 1). This represented approximately 1 in every 7 of the 9-year-olds residing in the country at the time of data collection. To do so, a geographically representative sample of 910 primary schools from across Ireland were selected, with eligible participants (i.e., those born between 1st November 1997 and 31st October 1998) from within these schools chosen at random. From this initial sample, 7525 young adolescents participated at Wave 2. Reasons for attrition noted by the GUI include child moving aboard/deceased (n = 103), refusal (n = 668), unable to contact participant (n = 218) and other (n = 54).

From this Wave 2 sample, there were 3682 (48.9%) boys and 3843 (51.1%) girls, who were predominantly 13 years old (n = 7403; 98.4%), with some aged 12 (n = 36; 0.5%) and 14 (n = 86; 1.1%) at the time of data collection. Most adolescents lived in a household with two adult caregivers (i.e., either both parents or primary caregiver and their partner) (n = 6534; 86.8%), and the large majority reported the mother as the primary caregiver (n = 7346; 97.5%).

The current wave (Wave 2) of the GUI survey took place between August 2011 and March 2012. Interviews were carried out with participating adolescents, as well as primary and secondary caregivers, in their own home. The study was approved by an independent Research Ethics Committee convened by the Irish Health Research Board.

Measures

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While there may be more thorough measures available to examine some of these constructs, our analyses are restricted to the measures included in the original GUI.

Stressful Life Events (SLEs).

A 14-item measure tailored for children/adolescents was used to capture the number of stressful life events experienced by the adolescent, with items borrowed from the Lindens Life Event for Students Scale (LESS; Linden, 1984), use of which has been validated across other samples (e.g., Clemints & Turpin, 1996). They were asked to indicate, using a simple yes/no response, if any of the following events had occurred in the past three years: Death of a parent, Death of a close family member, Death of a close friend, Divorce, Moving house within Ireland, Moving country, Stay in a foster home, Serious illness/injury, Serious illness/injury of a family member, Drug taking/alcoholism within the family, Mental disorder within the family, House broken into/Home burgled, Conflict between parents, Parent in prison.

Some of these items (e.g. Death of a Parent', 'Death of a Close Friend', 'Divorce/Separation of Parents', 'Stay in a Foster Home', 'Conflict between parents' and 'Parent in prison) could be viewed as potential confounds to the quality of the adolescent's relationship with their parents, or peers. Thus, the analyses[1] reported here do not include any of these scale items, leaving a total of 8 stressful life events. A total Stressful Life Event score based on the summed number of events is used for our analyses.

Inventory for Parent and Peer Attachment.

The trust and alienation subscales of Armsden and Greenberg's (1987) Inventory for Parent and Peer Attachment (IPPA) was used to measure two dimensions of adolescent's

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relationship with their peers: trust (e.g., My friends listen to what I have to say) and alienation (e.g., I feel angry with my friends). The IPPA is commonly used in previous research as an effective measure of attachment (e.g., Wilson & Wilkinson, 2012), however, it has also been described as an accurate measure of relationship quality (Gorrese & Roggieri, 2012). Therefore, it is used as a measure of relationship quality within the current study. The 17-item measure is rated on a 5-point Likert scale *(1 = Definitely does not apply, 2 = Does not really apply, 3 = Neutral/Not Sure, 4 = Somewhat applies, 5 = Definitely applies).* A total score of peer relationship quality was calculated by subtracting the sum of the alienation subscale from the sum of the trust subscale, similar to the original coding description by Armsden and Greenberg. Although the original scale comprises of three subscales: trust, alienation and communication, the GUI survey does not include the communication subscale. Scores range from -14 to 44, with higher scores are indicative of higher quality peer relationships. The IPPA as a validated measure for use among adolescents has been shown across a number of studies (e.g., Guarnieri, Ponti, & Tani, 2010; Pace, San Martini, & Zavattini, 2011) with good internal reliability noted for the trust ($\alpha = .86$) and alienation ($\alpha = .69$) subscales (Gullone & Robinson, 2005).

Adolescent Parent Relationship Quality.

Parental relationship quality was measured using a single item which asked, 'How well do you get on with your Mom?'. This was rated on a 3-point Likert scale *(1 = Very Well, 2 = Fairly Well and 3 = You and your Mom do not get on)*, completed by the adolescent. This scale suggests that higher scores are indicative of poorer relationship quality, however, for ease of interpretation, this was reverse coded to show that higher scores represent higher

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quality relationships, consistent with the direction of the IPPA measure. For the purpose of the current analyses, the quality of the relationship with the mother is used to represent adolescent-parent relationship quality due majority of the sample reporting mothers as primary caregiver (97.5%); those reporting the father as the primary caregiver have been excluded.[2]

Piers-Harris II Children's Self-Concept Scale.

The Piers-Harris Self-Concept Scale (Piers, Harris, & Herzberg, 2002) is a 60-item self-report measure assessing adolescent self-concept across six subscales; behavioural, intellectual and school, physical appearance, freedom from anxiety, popularity, and happiness and satisfaction. The scale is completed based on whether or not each item (e.g., 'I am smart', 'I get worried when we have tests in school') accurately describes how the adolescent feels about themselves ('Yes' or 'No'). A composite score ranging from 0 to 60 is utilised within the current analyses, with higher scores indicating better well-being. The reliability and validity of this measure has been demonstrated across a range of samples (Alexopoulos & Foudoulaki, 2002; Flahive, Chuang, & Li, 2011; Lemley, 2004) with internal consistency (alpha) estimates ranging from 0.74 to 0.81 for the subscales, and 0.91 for the overall score (Piers, Harris, & Herzberg, 2002).

Statistical Analyses

Prior to testing our main hypotheses, we examined correlations between sociodemographic factors (e.g., parent in the home, income, education) and our key outcomes variables to test for potential cofounding variables. In addition to these, and the confounding variables addressed within the stressful life events measure discussed previously,

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consideration has also been given to those who reported to have been diagnosed with an emotional or behavioural (e.g., attention deficit hyperactivity disorder (ADHD)) or an Autism Spectrum Disorder by the primary caregiver. This is due to previous research highlighting the difficulties these adolescents may have within social relationships (Lakhan & Kirchgessner, 2012).

Finally, with research highlighting gender as an important factor on the impact of stress on well-being (Gorrese & Ruggieri, 2012; Peterson, Sarigiani, & Kennedy, 1991) and within social relationships (Cross & Madson, 1997; Ma & Huebner, 2008) among adolescents, gender is included, and explored, as a covariate.

Simple linear regression analyses examined the predictive relationship of stressful life events on psychological well-being. Parallel mediation analyses examined both parent and peer relationship quality as independent mediators between stressful life events and psychological well-being, using Hayes PROCESS Model 4 (Hayes, 2013). Mediation analyses are reported both with and without gender as a covariate. Given that large sample sizes can sometimes skew findings (Cohen, 1990), and inflate the possibility of Type 1 errors or falsely reporting a significant effect, effect sizes and 95% confidence intervals for all analyses were reported. All analyses were conducted using IBM SPSS statistics package version 24.

Results

Descriptive Statistics

On average, adolescents experienced a low number of stressful events in the past three years (M = 1.34, SD = 0.64, Range 1 - 8). The majority of adolescents reported experiencing

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either one (*n* = 3014, 72.9%) or two stressful events (*n* = 888, 21.49%), with boys and girls reporting similar numbers of stressful events. Overall, the most frequently reported event was the 'death of a close family member other than a parent' (*n* = 2974). (See Table 1 below for more detail on stressful life events). Moreover, adolescents report high-quality relationships with their parent (*M* = 2.79, *SD* = 0.43, Range = 1- 3) and their peers (*M* = 29.31, *SD* = 9.36, Range = -14 – 44). Finally, the current sample scored between 45 and 55 (*M* = 48.00, *SD* = 8.26) which is considered 'Average' based on the scoring from a review of the Piers Harris Self Concept Scale by the Community-University Partnership for the Study of Children, Youth, and Families (2011).

Gender Differences

A significant gender difference in psychological well-being was observed ($t(7374.10) = 10.23$, $p < .001$), with boys (*M* = 49.00, *SD* = 7.90) reporting higher levels girls (*M* = 47.05, *SD* = 8.49). Girls also reported greater numbers of stressful life events ($t(4200.10) = -2.13$, $p = .03$), (*M* = 1.36, *SD* = 0.63) vs (*M* = 1.31, *SD* = 0.60) for boys. In terms of relationships, girls (*M* = 30.58, *SD* = 9.54) reported slightly better relationship quality with their peers than boys (*M* = 27.99, *SD* = 8.99), $t(7308.54) = 4.95$, $p < .001$), while boys (*M* = 2.77, *SD* = .38) reported slightly better parental relationship quality than girls (*M* = 2.73, *SD* = 0.40), $t(7356) = -11.97$, $p < .001$). As such, gender is included and explored a covariate within the main analyses, Moreover, analyses were conducted both including and excluding those diagnosed with an emotional or behavioural disorder (*n* = 96, 1.3%) or an Autism Spectrum Disorder (*n* = 73, 1%). No differences in results were evident when those with such diagnoses were

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included. Therefore, given these results, and the small proportion of the sample diagnosed with these disorders, these participants were not omitted from the analyses.

SLEs and Well-Being

Regression analyses were conducted to test the relationship between stressful life events and psychological well-being. Results show that stressful life events are negatively associated with psychological well-being (β = -.74, p = .001, 95% CI [-1.15, -.32], r^2 = .003). Indeed, when including gender as a covariate within the analyses, the results still suggest that a negative association between stressful life events and psychological well-being (β = -.68, p = .001, [-1.09, -.27], r^2 = .02) among 13-year-old adolescents. This indicates that, regardless of gender, higher numbers of stressful events are associated with poorer psychological well-being.

Mediation Analyses

Parallel mediation analyses were conducted to examine the effect of parent and peer relationship quality as independent mediators explaining the association between stressful events and psychological well-being among adolescents (See Figure 1 for mediation diagram). Firstly, results show that stressful life events negatively predict adolescent-mother relationship quality (β = - .02, p = .04, [-.04, -.006]), however, no effect of stressful life events on the quality of peer relationships is evident, (β = -.44, p = .06, [-.91, .03]. Secondly, results highlight that both mother (β = 4.59, p < .001, [4.08, 5.11]) and peer (β = .36, p < .001, [.34, .38]) relationship quality is positively associated with the psychological well-being of adolescents. A significant indirect effect of stressful life events on psychological well-

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being through adolescent-mother relationship quality (β = -.11, *SE* = .05, [-.21, -.01], but not adolescent-peer relationship quality (β = -.16, *SE* = .08, [-.33, .01]) was noted. This suggests that the quality of the relationship between adolescents and *parents* is one potential mechanism by which the negative effect of stress impact their well-being.

[Insert Figure 1 about here]

To account for gender as a potential covariate, mediation analyses were again conducted to examine the effect of mother and peer relationship quality as mediators between stressful events and psychological well-being among adolescents, while controlling for the gender of the adolescent (See Figure 2). Interestingly, a significant indirect effect of stressful life events on psychological well-being through adolescent-mother relationship quality (β = -.10, *SE* = .05, [-.20, -.004], and peer relationship quality (β = -.19, *SE* = .09, [-.38, -.02]) was found. Specifically, results show that stressful life events were negatively associated with both mother (β = - .04, $p < .05$, [-.04, -.001]) and peer (β = - .51, $p < .05$, [-.95, -.06]) relationship quality, such that more stressful life events are associated with a decrease in the quality of these relationships. Moreover, both mother (β = 4.37, $p < .001$, [3.86, 4.87]) and peer (β = .38, $p < .001$, [.36, .41]) relationship quality predicted psychological well-being, suggesting that these poor-quality relationships are associated with lower levels of psychological well-being.

Overall this suggests that, when holding gender constant, the quality of the relationship between adolescents and both their mothers and peers independently, may explain the pathway by which stress can affect well-being. As a result of the variation in

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findings when including gender as a covariate, further exploratory analyses were conducted on boys and girls separately to evaluate any gender differences that may be evident.

[Insert Figure 2 about here]

Sensitivity Analyses: Gender Differences

Regression Analyses

Preliminary regression analyses examining boys and girls independently revealed that stressful life events were negatively associated with psychological well-being for adolescent girls (β = -1.00, $p < .001$, [-1.57, -.44], $r^2 = .006$), however, for boys, stressful life events were not associated directly associated with psychological well-being, (β = -.27, $p = .37$, [-.85, .31]).

Mediation Analyses: Girls

Results show that, for girls only, stressful events negatively predicted peer relationship quality (β = -.73, $p = .03$, [-1.38, -.08]), which in turn is positively associated with psychological well-being (β = .37, $p < .001$, [.34, .40]). However, stressful life events did not predict the quality of adolescent girls' relationship with their mothers (β = -.02, $p = .17$, [-.05, .009]), but the quality of this relationship did have a positive impact on well-being (β = 5.21, $p < .001$, [4.51, 5.92]). As such, an indirect effect though peer relationship quality only (β = -.27, *SE* = -.27, [-.51, -.03]), is evident (See Figure 3). In summary, this suggests that increases in stressful life events are linked to poorer relationship quality with *peers, but not mothers,* for adolescent girls, and this in turn, is linked to lower levels of psychological well-being.

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[Insert Figure 3 about here]

Mediation Analyses: Boys

In contrast, for boys, there was no direct association between stressful life events and psychological well-being (β = -.10, *p* = .70, [-.60, .40]), or any indirect mediation effect through mother (β = -.006, *SE* = .004, [-.01, .003]) or peer relationship quality (β = -.007, *SE* = .01, [-.03, .01]) (See Figure 4). However, these further mediation analyses did indicate that the quality of adolescent boys' relationships with both their mothers (β = 3.59, *p* <.001, [2.85, 4.34]) and peers (β = .39, *p* <.001, [.36, .43]) was positively associated with psychological well-being.

[Insert Figure 4 about here]

Overall, these findings propose that for adolescent girls, more stressful life events are linked to poorer relationships with peers, which in turn leads to lower levels of psychological well-being, Stressful life events, however, are not associated with the quality of parental relationships. For boys, these findings suggest that stressful events do not impact their psychological well-being, nor is the quality of their relationships with mothers or peers a significant mediating factor.

Discussion

This research examined parental and peer relationship quality as mechanisms for explaining the association between stressful events and psychological well-being among young adolescents. In line with our expectations, stressful life events were negatively associated with psychological well-being. Specifically, our findings indicated that for girls,

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the negative association between stressful life events and psychological well-being can be explained by the quality of their relationship with their peers. In other words, experiencing more stressful life events decreases the quality of girls' relationships with their peers, which in turn leads to poorer psychological well-being. In contrast, however, for boys, there was no association between stressful life events and psychological well-being, and parent or peer relationship quality were not significant mediating factors. In addition to incorporating both parent and peer relationship quality as important mechanisms in understanding the damaging effect of stressful life events on psychological well-being, this paper also indicates that there may be important differences in how this process occurs between adolescent boys and girls.

Consistent with previous literature (e.g., DeLongis, Folkman & Lazarus, 1988; Lazarus, 1995; Thoits, 2010), the findings from the overall sample show that stressful life events are linked to poorer psychological well-being among early adolescents; such that experiencing more stressful life events is associated with poorer self-reported psychological well-being. In explaining this association, our research expands on Hammen and Rudolph's interpersonal theory of psychopathology (1996) to incorporate the *quality* of relationships as an important mediating variable. Initial findings suggest that this association may be explained by *mother*-adolescent relationship quality. However, when controlling for the gender of the adolescent within the analyses, both mother *and* peer relationships mediate this association. This suggests then, that both mother and peer relationship quality may be independent mechanisms by which the association between stressful life events and adolescent psychological well-being can be explained. Indeed, these findings give a valuable insight into the harmful impact of stressful events on the quality of key relationship figures for

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adolescents. Although there have been conflicting views as to whether parent (Paulsen & Berg, 2016; Klarin, Šimić Šašić, & Proroković, 2012; Sheeber et al., 1997; Lin, Latner, Fung, & Lin, 2018) or peer relationships (Furman & Buhrmester, 1992; Tomé et al., 2014) play a more important role for adolescent psychological well-being, these relationship figures are often examined in isolation. Recent research, however, has begun to incorporate both parent and peer relationships to explain the mechanisms by which stressful life events can impact the psychological health of adolescents. For example, Aliri and colleagues (2019) have demonstrated that among a sample of 1653 adolescents aged between 13 and 18, parental relationship was a mediating variable in the relationship between stressful life events and depressive symptomatology, but peer relationships did not. Contrary to this, the initial findings from the current study suggest that, in fact, both parent and peer relationships can mediate the association between stressful life events and psychological well-being.

Interestingly however, gender differences in pathways between SLE's and psychological well-being were identified. For girls, this was mediated by the quality of their relationships with their peers, while for boys, there was no association between stressful life events and psychological well-being. Indeed, previous research has shown that gender differences in social relationships exist (Cross & Madson, 1997). Specifically, it has been noted that peer relationship quality is more important for girls (Claes, 1992; Richards et al., 2010) as they tend to report higher levels of attachment to peers (Ma & Heubner, 2008) and overall, favour higher-quality intimate relationships more than boys (Nangle et al., 2004). Perhaps it could be the case that from a young age, girls are socialised to share their emotions and talk openly

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about their feelings with their friends, whereas for boys, their friendships tend to centre around activities such as team sports, for example.

In addition to this, results from this study indicated that on average girls showed lower levels of psychological well-being and reported more stressful life events than boys. This is consistent with previous research which has shown that girls often report higher levels of stress (Moksnes, Moljord, Espnes & Byrne, 2010) than boys, which can have greater impact on their psychological well-being (Petersen, Sarigiani, & Kennedy, 1991). Overall, given that stressful life events are linked to poorer relationship quality, along with higher levels of stress and lower levels of psychological well-being reported, it could be suggested these have more implications for the psychological well-being of adolescent girls.

These findings highlight the importance of addressing the relationship quality of key figures, rather than merely social support or the size of our social network when investigating the impact of stress on well-being. Indeed, psychosocial interventions aimed to promote positive well-being can benefit from the knowledge that relationship quality plays a significant role. In fact, developing appropriate strategies for adolescents to improve or maintain high-quality relationships rather than solely focusing on tangible support may help counteract the damaging effects of life stressors.

Moreover, acknowledging that boys and girls respond to and are affected by stressors differently, is also central in identifying effective methods of reducing the negative effects of stress among adolescents. These finding are not only important for the development of large-scale strategies or interventions but can also be useful in educating adolescents on the effects

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of stress, appropriate coping mechanisms, and the importance of high-quality relationships, at a micro-level.

This study adopts a population-based approach to address relationship quality as a mechanism underlying the association between stressful events and well-being among adolescents. Given that the dataset consists of a nationally representative sample of 13-year olds from across Ireland, the external validity of these findings can be supported. However, secondary analysis is limited by the design of and measures included in the GUI study. Firstly, the GUI study is a longitudinal project, but some measures analysed within the current study (specifically, relationship quality measures) are not available for the 9-year old, Wave 1 cohort, preventing longitudinal analyses. Secondly, regarding peer relationship quality, the GUI survey only includes two of the three subscales of Armsden and Greenberg's original measure of the IPPA (trust and alienation, but not communication). Moreover, this measure only addressed peer relationships, and the parental attachment component of the IPPA was not measured in the GUI survey. As such, an alternative measure of parental relationship quality from within the dataset was used. Indeed, using this measure of parental relationship quality is in itself a limitation given that it relied on a single item reporting of the quality of the adolescents' relationship with their mother. However, we believe that it was important that the quality of both parent and peer relationship quality was reported from the perspective of the adolescent, and as such, was the reason why this measure was selected. It would be beneficial, however, for future research to conduct replication studies using both parent and peer components of the IPPA, or alternative measures of relationship quality. Moreover, eventually there is a shift in focus from peers to romantic partners and future

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research could also explore transition from peer to intimate romantic relationships, at later developmental stages. Although there are limitations of these measures, this study can be used as a starting point to pave the way for future research to incorporate multiple relationship figures in understanding that implications of stressful life events for psychological well-being.

Moreover, stressful life events within the Growing Up in Ireland survey is measured as a binary variable where participants answered yes or no to an event occurring. As such, it does not account for the repetitiveness of events (i.e., how many times an event occurred, rather than whether or not it had), or how stressful the adolescent found these events. The addition of these would give more depth to our understanding of the implications of stressful life events for psychological well-being, and how adolescents' relationships might be affected as a result.

Finally, although attention had been paid to a number of variables that could impact the psychological well-being of adolescents, it is important to acknowledge some limitations within the current analyses regarding the inclusion of additional variables. For example, consideration was given to those diagnosed with an emotional or behavioural (e.g., ADHD) or an Autism Spectrum Disorder, however, this diagnosis was reported by the primary caregiver and was not cross referenced with medical records. Moreover, there are alternative factors that have been noted to influence adolescent psychological well-being (e.g., pubertal timing (Strong, Tsai, Lin, & Cheng, 2016)) or that have been acknowledged as stressful life events for adolescents (e.g., bullying (Arseneault Bowes, & Shakoor, 2010)) that were outside the scope of this secondary analyses.

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Overall, this research makes important contributions to the literature by 1) focusing on the *quality* of social relationships in understanding the association between stressful life events and psychological well-being among adolescents 2) incorporating both parent *and* peer relationships as important mechanisms by which this association could be explained and 3) recognises important gender differences in how this process occurs.

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Footnotes

[1] Alternative analyses were also conducted using the total LESS measure which included the aforementioned confounds. Results for these analyses showed that stressful life events significantly predicted well-being, however, this association was not significantly mediated by parent or peer relationship quality.

[2] On examining those who reported the father as the primary caregiver (n = 185), results show that stressful life events did not significantly predict psychological well-being among this sample (p = .29). Therefore, further mediation analyses were not conducted.

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Table 1. Stressful Life Events experienced by the adolescent

	Male		**Female**		**Total**	
No. of Stressful Life Events	*N*	%	*N*	%	*N*	%
1	1526	74.77	1488	71.13	3014	72.93
2	422	20.68	466	22.28	888	21.49
3	68	3.33	112	5.35	180	4.36
4	17	0.83	22	1.05	39	0.94
5	7	0.34	4	0.19	11	0.27
6	1	0.05	-	-	1	0.02
Type of Stressful Life Event						
Death of a close family member	1468	54.17	1479	51.64	2947	52.87
Moving house within Ireland	375	13.84	420	14.66	795	14.26
Moving country	19	0.70	23	0.80	42	0.75
Serious illness or Injury	128	4.72	118	4.12	246	4.41
Serious illness or injury of family member	406	14.98	476	16.62	882	15.82
House broken into	145	5.35	140	4.89	285	5.11
Drug taking/alcoholism within the family	68	2.51	89	3.11	157	2.82
Mental disorder within the family	101	3.73	119	4.16	220	3.95

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Note: Descriptive statistics on stressful life events only refer to stressful events included in the overall analyses, (i.e., Death of a close family member, Moving house within Ireland, Moving country, Serious illness/injury, Serious illness/injury of a family member, Drug taking/alcoholism within the family, Mental Disorder within the family, House broken into)

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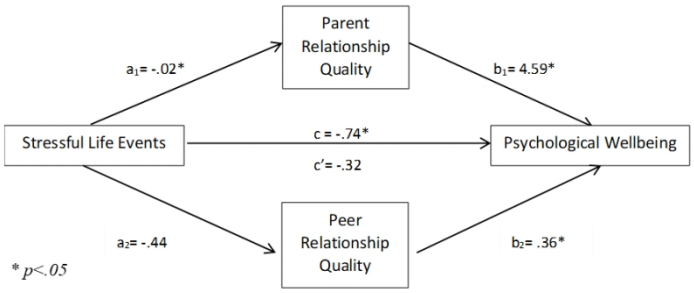

Figure 1. Parallel mediation diagram: Parent and peer relationship quality as mediators between stressful life events and psychological well-being in adolescents.

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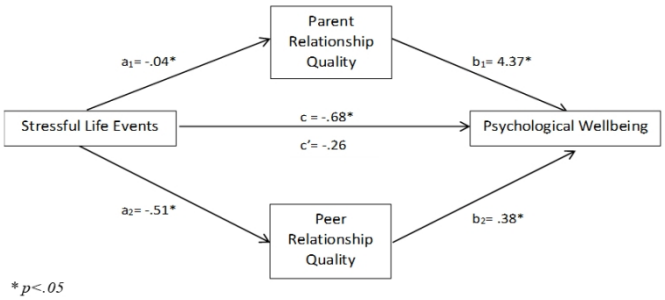

*p<.05

Figure 2. Parallel mediation diagram: Parent and peer relationship quality as mediators between stressful life events and psychological well-being in adolescents, while controlling for gender

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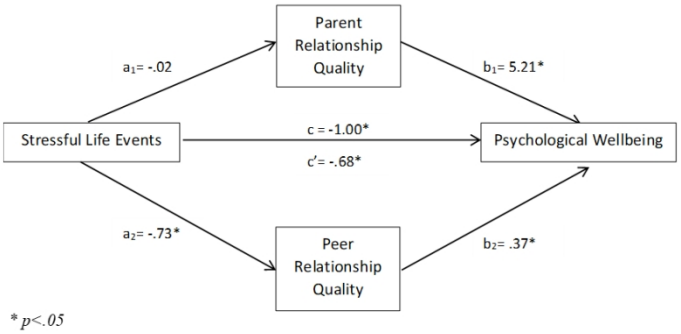

Fig 3. Parallel mediation diagram: Parent and peer relationship quality as mediators between stressful life events and psychological well-being in adolescents for girls only

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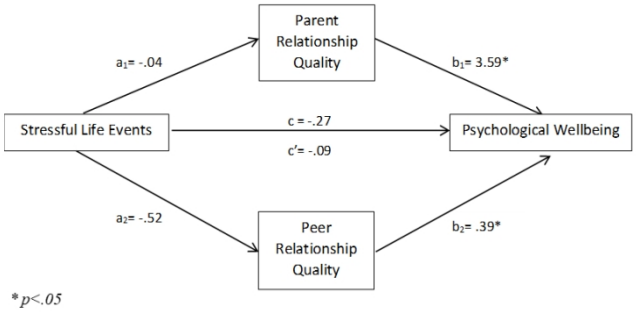

Fig 4. Parallel mediation diagram: Parent and peer relationship quality as mediators between stressful life events and psychological well-being in adolescents for boys only

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